

## CLAIMS:

1. A method for signal processing, wherein a sensor signal of an image sensor is provided as an input and wherein the input is reconstructed in a filter to establish an output for further processing, wherein the filter comprises at least one reconstruction-filter selected from the group consisting of: a luminance-reconstruction-filter, a red-green-blue-color-reconstruction-filter and a contour-reconstruction-filter, wherein  
5     - the input comprises a plurality of pixels, and a pixel provides a color value assigned to at least one of the colors red, green or blue,  
characterized by  
   - applying the luminance-reconstruction-filter to an array of pixels of predetermined array  
10     size comprising a number of pixels, wherein at least one of the number of pixels is formed by a red-pixel assigned to the color of red, at least one of the number of pixels is formed by a blue-pixel assigned to the color of blue, and at least one of the number of pixels is formed by a green-pixel assigned to the color of green, and  
   - applying subsequent to the luminance-reconstruction-filter the color-reconstruction filter  
15     which comprises a false-color-filter to eliminate false colors from the input.
2. The method as claimed in claim 1, characterized by weightening the red- and/or the blue-pixel by a green-parameter.
- 20 3. The method as claimed in claim 1, characterized by summarizing the pixels of the array into one output-pixel, and centering the output-pixel in the array, in particular by positioning a center-output-pixel of a second filter subsequent to a first filter in phase with the output-pixel, in particular by centering the center-output-pixel it is centered at the same center position of the array as the output-pixel.
- 25 4. The method as claimed in claim 1, characterized by applying the false-color-filter to an array of green-pixels of predetermined size, in particular to a predetermined small array of green-pixels having a size of four pixels, comprising at least two green-pixels, one red-pixel and one blue-pixel.

5. The method as claimed in claim 1 or 4, characterized in that the false-color-filter comprises the following steps:

- weightening the red- and or blue-pixels in a predetermined small array of green-pixels  
5 respectively by one or more further green-parameters,
- applying an average filter to one or more green-pixels in the array,
- summarizing the weighted red- and blue pixels and an average of one or more of the green-pixels in the array by a median filter,
- comparing the median-filtered pixels with low-frequency-filtered pixels of the  
10 predetermined small array of green-pixels, to thereby eliminate false colors from the input.

6. The method as claimed in any one of the claims 4 or 5, characterized in that the predetermined small array of green-pixels has an array-size of  $3 \times 3$ .

7. The method as claimed in any one of the preceding claims, characterized in that the applied color-reconstruction-filter has an array-size of  $3 \times 3$  or  $5 \times 5$ , in particular an array-size of  $5 \times 5$  in case of a heavy sensor matrix.

8. The method as claimed in any one of the preceding claims, characterized by applying a post-filter subsequent to a false-color-filter to maintain a phase to a previous applied luminance-reconstruction-filter.

9. The method as claimed in claim 8, characterized by applying subsequent to a false-color-filter a post-filter of  $2 \times 2$  array-size, to position a center-output-pixel of a predetermined array of green-pixels in phase with a white-pixel which is centered as an output-pixel with respect to the same array as that to which a luminance-reconstruction-filter has been applied to.

10. The method as claimed in any one of the preceding claims, characterized by either column-wise or row-wise processing with regard to the matrix.

11. An apparatus for signal processing, which is in particular adapted to execute the method as claimed in claims 1 to 10, comprising an image sensor for providing a sensor

signal as an input and a filter for reconstructing the input to establish an output for further processing, wherein the filter comprises at least one reconstruction-filter selected from the group consisting of: a luminance-reconstruction-filter, a red-green-blue-color-reconstruction-filter and a contour-reconstruction-filter, wherein

- 5     - the input comprises a plurality of pixels and a pixel provides a color value assigned to at least one of the colors red, green or blue,
- characterized in that
- 10     - the luminance-reconstruction-filter is adapted to be applied to an array of pixels of predetermined array size comprising a number of pixels, wherein at least one of the number of pixels is formed by a red-pixel assigned to the color of red, at least one of the number of pixels is formed by a blue-pixel assigned to the color of blue, and at least one of the number of pixels is formed by a green-pixel assigned to the color of green, and wherein
- 15     - the color-reconstruction-filter is applied subsequent to the luminance-reconstruction-filter and the color-reconstruction-filter which comprises a false-color-filter to eliminate false colors from the input

12.           The apparatus as claimed in claim 11, characterized by:

- 20     - means for weightening the red- and/or the blue-pixel by the array with a green-parameter, and/or
- means for summarizing the pixels of the array into one output pixel, and/or
- means for centering the output pixel in the array.

13.           A computer program product storable on medium readable by a computing system, in particular a computing system of a camera, comprising a software code section which induces the computing system to execute the method as claimed in any one of claims 1 to 11 when the product is executed on the computing system, in particular when executed on the computing system of a camera.

25

30     14.           A computing system and/or semiconductor device, in particular a computing system of a camera, for executing and/or storing a computer program product as claimed in claim 13 thereon.

15. A camera comprising an optical system, an image sensor and an apparatus as claimed in claim 11 or 12 or a computing system as claimed in claim 14.